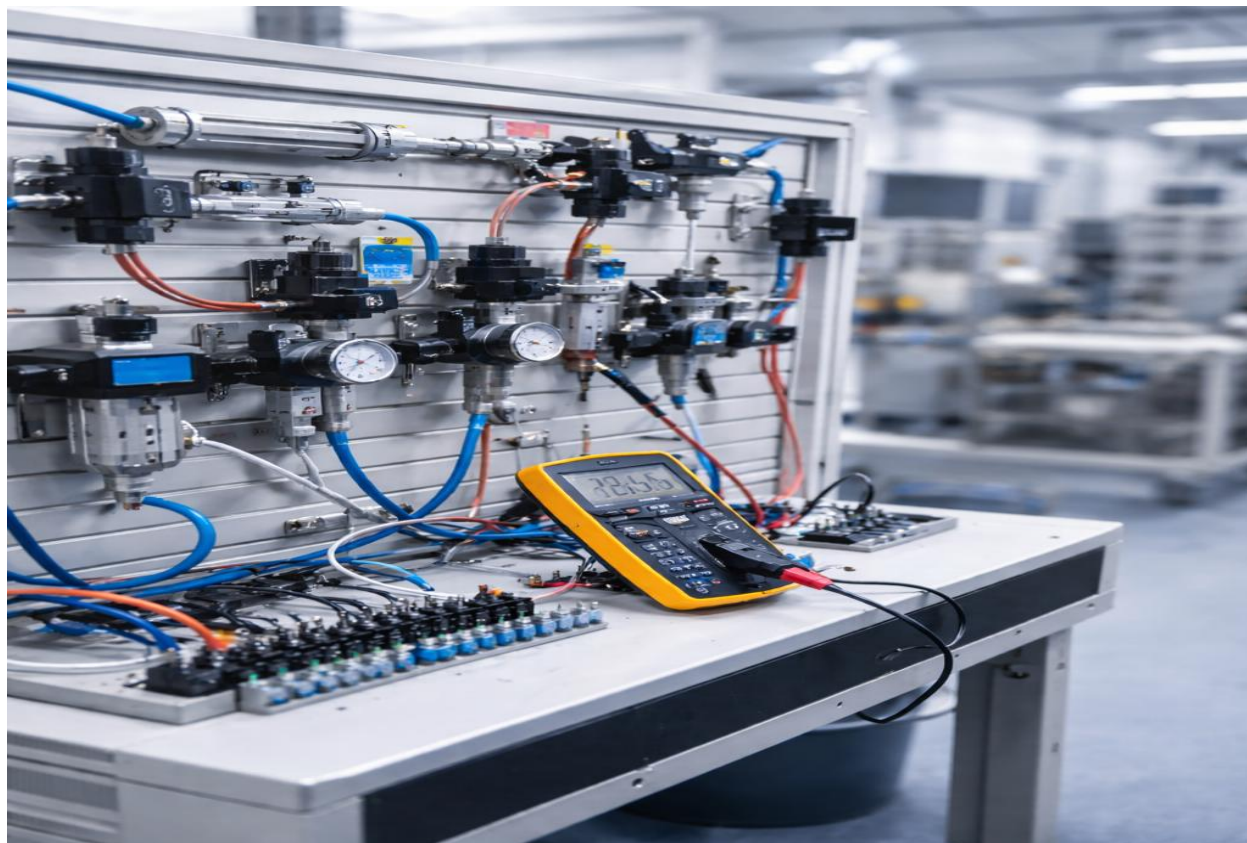




Model Curriculum

MCr Name: Basic Electro-Pneumatics Technician
OEM Name: Basic Electro-Pneumatics Technician

MCr Code: ELE/MCr-0006

MCr Version: 1.0

NSQF Level: 4.5

Model Curriculum Version: 1.0

Electronics Sector Skills Council of India || 155, 2nd Floor ESC House, Okhla Industrial Area – Phase 3,
New Delhi - 110020

Table of Contents

Training Parameters	3
Program Overview.....	4
Training Outcomes.....	4
Compulsory Modules	4
Module Details.....	5
Module 1: Basic of Electro-Pneumatics Systems	5
Annexure	7
Trainer Requirements	7
Assessor Requirements	8
Assessment Strategy	9
References	11
Glossary	11
Acronyms and Abbreviations.....	12

Training Parameters

Sector	Electronics
Sub-Sector	Electronics Manufacturing Services
Occupation	Quality Assurance -I & A
Country	India
NSQF Level	4.5
Aligned to NCO/ISCO/ISIC Code	NCO-xxxx/xxxxxxx
Minimum Educational Qualification and Experience	1. Diploma after 10th in Electronics / Electrical / Mechanical Engineering with 6 Months of relevant experience required 2. 12th Grade or Equivalent with 1.5 years of relevant experience 3. 10th Grade or equivalent with 4.5 years of relevant experience 4. Previous NSQF qualifications of Level 4 with 1.5 years of relevant experience *Relevant Experience in Electronics Manufacturing Services Domain
Pre-Requisite License or Training	NA
Minimum Job Entry Age	NA
Last Reviewed On	08.07.2026
Next Review Date	08.07.2029
NSQC Approval Date	08.07.2026
MCR Version	1.0
Model Curriculum Creation Date	08.07.2026
Model Curriculum Valid Up to Date	08.07.2029
Model Curriculum Version	1.0
Maximum Duration of the Course	30 Hrs.
Minimum Duration of the Course	30 Hrs.

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes:

At the end of the program, the learner should have acquired the listed knowledge and skills:

Compulsory:

- Basic lecture introduces different aspects of Electro-Pneumatics systems and exposure to the current activities at a particular.

Compulsory Modules:

The table lists the modules and their duration corresponding to the Compulsory MCr of the QF.

MCr and Module Details	Theory / Demonstration Duration (In Hours)	Practical/OJ T Duration (In Hours)	On-the-Job Training Duration (in hours) (Mandatory)	On-the-Job Training Duration (in hours) (Recommended)	Total Duration (In Hours)
ELE/MCr-0006	12:00	18:00	00:00	00:00	30:00
Module 1 Basic of Electro- Pneumatics Systems	12:00	18:00	00:00	00:00	30:00
Total Duration	12:00	18:00	00:00	00:00	30:00

Module Details

Module 1: Basic of Electro-Pneumatics Technician

Mapped to ELE/MCr-0006

Terminal Outcomes:

Upon completion of the module on Basic of Electro-Pneumatics Systems, students will:

- Understand the technical and economic aspects of electro-pneumatic systems.
- Apply basic electrical theory in electro-pneumatic circuits.
- Identify and operate electro-pneumatic components and assemblies.
- Use sensors, timers, and counters for basic control functions.
- Understand compressed air generation and usage in pneumatic systems.
- Read and design basic electro-pneumatic circuit diagrams.
- Follow safety standards in electro-pneumatic system operation.

Duration: 12:00 hrs

Theory - Key Learning Outcomes

- Describe the historical, economic, and technical aspects of electro-pneumatic systems and hybrid applications.
- Explain basic electrical principles, including electricity, Ohm's Law, series and parallel circuits, and Kirchhoff's Law.
- Understand AC/DC principles, magnetism, and electromagnetism used in electro-pneumatic systems.
- Identify electro-pneumatic components such as solenoid valves, switches, sensors, timers, and counters.
- Explain compressed air generation, air quality concepts, dew point, and humidity control.
- Interpret electro-pneumatic schematics, ladder diagrams, and control symbols as per standards.
- Recognize safety requirements and hazards related to electrical and pneumatic systems.

Duration: 18:00 hrs

Practical - Key Learning Outcomes

- Mount and operate basic electro-pneumatic components and assemblies.
- Install and configure sensors, timers, and counters for simple control sequences.
- Monitor compressed air systems, including dryers, actuators, and related components.
- Create and read basic electro-pneumatic circuit diagrams using standard symbols.
- Troubleshoot common electrical and pneumatic faults using systematic methods.
- Apply safe handling practices and report hazards in electro-pneumatic systems.

Classroom Aids: (If Offline mode)
• Whiteboard and Markers • Chart paper and sketch pens • LCD Projector and Laptop for presentations
Tools, Equipment and Other Requirements
Labs equipped with the following: • Magnetic Symbols, SMC Electro-Pneumatic Training Software, Electro-Pneumatic Hands-on training kit, Training exercises set, SMC Circuit simulation software

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate Science & Engineering	Electrical/ Mechanical/ Electronics	1	Electronics Manufacturing Services	1	Electronics Manufacturing Services	
Diploma/ITI	Electrical/ Mechanical/ Electronics	2	Electronics Manufacturing Services	1	Electronics Manufacturing Services	

Trainer Certification	
Domain Certification	Platform Certification
“Basic Electro-Pneumatics Technician, ELE/MCr-0006, version 1.0”. Minimum accepted score is 80%.	Recommended that the Trainer is certified for the Basic Electro-Pneumatics Technician “Trainer (VET and Skills)”, mapped to the Qualification Pack: “MEP/Q2601, V2.0”, with minimum score of 80%

Assessor Requirements

7 | MCr Name: Basic Electro-Pneumatics Technician
OEM Name: Basic Electro-Pneumatics Technician

Assessor Prerequisites						
Minimum Educational Qualification	Specialization	Relevant Industry Experience		Training Experience		Remarks
		Years	Specialization	Years	Specialization	
Graduate Science & Engineering	Electrical/ Mechanical/ Electronics	2	Electronics Manufacturing Services	1	Electronics Manufacturing Services	
Diploma/ITI	Electrical/ Mechanical/ Electronics	3	Electronics Manufacturing Services	1	Electronics Manufacturing Services	

Assessor Certification	
Domain Certification	Platform Certification
“Basic Electro-Pneumatics Technician, ELE/MCr-0006, version 1.0”. Minimum accepted score is 80%.	Recommended that the Assessor is certified for the Basic Electro-Pneumatics Technician “Assessor (VET and Skills)”, mapped to the Qualification Pack: “MEP/Q2701, V2.0”, with minimum score of 80%

Assessment Strategy

1. Assessment System Overview:

- Batches assigned to the assessment agencies for conducting the assessment on SDMS/SIP or email
- Assessment agencies send the assessment confirmation to VTP/TC looping SSC
- Assessment agency deploys the ToA certified Assessor for executing the assessment
- SSC monitors the assessment process & records

2. Testing Environment:

- Confirm that the centre is available at the same address as mentioned on SDMS or SIP
- Check the duration of the training.
- Check the Assessment Start and End time to be as 10 a.m. and 5 p.m.
- If the batch size is more than 30, then there should be 2 Assessors.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.
- Check the mode of assessment—Online (TAB/Computer) or Offline (OMR/PP).
- Confirm the number of TABs on the ground are correct to execute the Assessment smoothly.
- Check the availability of the Lab Equipment for the particular Job Role.

3. Assessment Quality Assurance levels / Framework:

- Question papers created by the Subject Matter Experts (SME)
- Question papers created by the SME verified by the other subject Matter Experts
- Questions are mapped with MCr and PC
- Question papers are prepared considering that level 1 to 3 are for the unskilled & semi-skilled individuals, and level 4 and above are for the skilled, supervisor & higher management
- Assessor must be ToA certified & trainer must be ToT Certified
- Assessment agency must follow the assessment guidelines to conduct the assessment

4. Types of evidence or evidence-gathering protocol:

- Time-stamped & geotagged reporting of the assessor from assessment location
- Centre photographs with signboards and scheme specific branding

- Biometric or manual attendance sheet (stamped by TP) of the trainees during the training period
- Time-stamped & geotagged assessment (Theory + Viva + Practical) photographs & videos

5. Method of verification or validation:

- Surprise visit to the assessment location
- Random audit of the batch
- Random audit of any candidate

6. Method for assessment documentation, archiving, and access

- Hard copies of the documents are stored
- Soft copies of the documents & photographs of the assessment are uploaded / accessed from Cloud Storage
- Soft copies of the documents & photographs of the assessment are stored in the Hard Drives

References

Glossary

Term	Description
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical/OJT application).
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do upon the completion of the training
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do upon the completion of a module . A set of terminal outcomes help to achieve the training outcome.
National Occupational Standard	National Occupational Standard specify the standard of performance an individual must achieve when carrying out a function in the workplace
Persons with Disability	Persons with Disability are those who have long-term physical, mental, intellectual, or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others

Acronyms and Abbreviations

Term	Description
QF	Qualification File
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
SSC	Skill Sectors Councils
NASSCOM	National Association of Software & Service Companies
NCO	National Classification of Occupations
ISO	International Organization for Standardization
SLA	Service Level Agreement
IT	Information Technology
CRM	Customer Relationship Management
PC	Performance Criteria
PwD	Persons with Disability
SOP	Standard Operating Procedure